

SRTI L3 Profile

High Level Data Taskforce – Technical Group

J. Kaltwasser – 4 March 2020 – Version 00-02-00

Rationale

The signatories of the Proof-of-Concept MoU have agreed to use DATEX II to encode SRTI Level 3 data. They further agreed to use a common DATEX II profile, based on the SRTI *Recommended Reference Profile* which ensures compliance with the Commission Delegated Regulation (EU) 886/2013. This RRP is based on the common mapping table from DR886 to ITS standards, jointly developed by the DATEX II Program Support Action, TISA and the Amsterdam Group.

DATEX II model used

The profile is based on the DATEX II Situation package, which was downloaded from the datex2.eu website as a DATEX II pre-assembled package¹, containing the packages Common, LocationReferencing and Situation. The package contains also an empty Extension package, which has been filled by two DATEX II Level B extensions to extend the classes Linear and Point. The extensions provide one attribute respectively that takes up the corresponding location references – i.e. either a point or a linear – in OpenLR binary format. This format was preferred to the structured OpenLR encoding capabilities that exist in the LocationReferencing package.

Selection agreements

Based on this model, a selection was performed to define the common L3 profile. The selection was based on the SRTI RRP and no RRP-governed elements were de-selected.

The profile was created on the following principles, which had been agreed in a Web call on March 2nd 2020:

1. *Additional values that allow adding further detailed information to the classes used in the SRTI mapping table:*
It was agreed to keep these out of the PoC profile initially, unless we get concrete requirements for certain attributes to be included from PoC partners that want to provide the respective information details.
2. *Data elements to specify time validity aspects beyond overallStartTime and overallEndTime:*
It was agreed that no further timing details are required/available for SRTI information.
3. *Optional classes to further detail the SituationRecord base class of all SRTI events:*
It was agreed that these classes are not suitable/relevant for SRTI information, if the L3 information is created out of L2 vehicle data. In case that partners fuse non-vehicle L2 or L3 data feeds into the L3 generation process, they should state concrete requirements if they need any of these data elements.
4. *Location referencing:*
The following agreements were made to tailor the location referencing options in the profile:
 - a. Only point and linear locations are used (i.e. no area locations)
 - b. Options based on EN ISO 19148 and TPEG location referencing are not selected

¹ <http://d2docs.ndwcloud.nu/static/data/v3.0/UMLModel/DatexIISituation.eap>

- c. ALERT-C location referencing is supported as an option for points and linears – in both cases only ALERT-C Method 4 (including offset distance from pre-defined location points) is used for SRTI; ALERT-C linears by AlertCLinearByCode is not selected
- d. OpenLR location referencing is supported as an option for points and linears, but not the structured model available in DATEX II, but the binary encoding provided by OpenLR – this encoding is introduced as a string via a Level B extension
- e. Co-ordinate based location references for points and linears (PointByCoordinates, GmlLineString) are used and made mandatory, to achieve interoperability with all clients. Note that the GmlLinearRing specialisation for GmlLineString is excluded, since it is used for area locations

Application

The profile is provided in a package with the following documents:

- SRTI L3 Profile Briefing Note 00-02-00.pdf:
this document
- DATEX II PIM v3.0 with OpenLR binary 00-01-00.eap:
the DATEX II pre-packaged Situation UML model including the OpenLR binary extensions
- DATEX II PIM v3.0 with OpenLR binary 00-01-00.xml:
the XMI export from the UML model above needed for the profile generation
- L3Profile 00-02-00.sel:
the selection file that represents the data profile in the schema generation process
- safety_related_mapping_datex_denm_00-06-03.xlsx:
the current working draft of the DR886 mapping table which is the basis for the current RRP as well as this profile
- A folder named DATEXII_v3.0_L3_Profile with the following content:
DATEXII_3_Common.xsd
DATEXII_3_D2Payload.xsd
DATEXII_3_Extension.xsd
DATEXII_3_LocationReferencing.xsd
DATEXII_3_Situation.xsd
-- all these are the schema files created for the different namespaces by the DATEX II schema generation tool² based on the profile data above
instance1 00-01-00.xml – an example file with a valid message instance for testing purposes

The following options of using the package are possible:

Implementation of the whole profile

If you want to implement the profile “as-is”, you simply use the provided XML schemas (*.xsd files in the subfolder) for creating the serialisation functions of your interface, e.g. for data binding.

Creating a sub-schema

If your system does not handle all the data elements in this profile, you can create a tailored sub-schema for your system. This will reduce the implementation costs for clients that only want to connect to your data feed. Note that the DATEX II methodology and toolkit ensure that all valid

² <https://webtool.datex2.eu/wizard>

instances against such a sub-schema are by definition also valid against the full profile schema, i.e. this step does not create interoperability problems.

In order to create a sub-schema, follow the following steps:

1. Put the package in a folder on your hard disk
2. Open the DATEX II schema creation wizard at <https://webtool.datex2.eu/wizard>
3. In Step 1 – Source: Go to the “Your own model” tab; then click on the Browse... button and select your XMI file (“DATEX II PIM v3.0 with OpenLR binary 00-01-00.xml”) from your local folder; click on “Next”
4. In Step 2 – Selection file: Go to the “Your own selection” tab; then click on the Browse... button and select your .sel file (“L3Profile 00-02-00.sel”) from your local folder; click on “Next”
5. In Step 3 – RRP Selection: Select the “SRTI RRP 2019 SRTI RRP” option
6. In Step 4 – Selection: Now go through the selection tree and de-select the elements that your system does not support; Note that the tool will warn you if you de-select elements governed by the DR, but that is OK if your system doesn’t hold the content; Do not change the multiplicity of pointByCoordinates and gmlLineString, since we have agreed to make these mandatory
IMPORTANT: do not add elements, a sub-schema can only remove (optional) elements in order to stay interoperable
7. In Step 5 – Options: select the “Save selection to file selection.sel” to make sure you have your modified selection available for future iterations; use this file in Step 2 instead of the selection file provided initially with the package
8. In Step 6 – Finish: save the ZIP with the schema files you have created and the corresponding selection file (see Step 5) on your hard disk and proceed with them towards interface implementation as described in the previous section.

[Extending the schema, extending the model](#)

If the model or the selection in the schema are not sufficient for your data feed, do not extend the model/selection yourself. Contact the Tech Group to discuss modifications, which would then be made available for all users of the package.